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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,744	10/01/2004	Douglas D. Coolbaugh	BUR920040091US1	5743
44152	7590	09/21/2005		
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARK DRIVE RESTON, VA 20191				
			EXAMINER DICKEY, THOMAS L	
			ART UNIT 2826	PAPER NUMBER

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/711,744

Applicant(s)

COOLBAUGH ET AL.

Examiner

Thomas L. Dickey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/1/05</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Oath/Declaration

1. The oath/declaration filed on 10/01/2004 is acceptable.

Drawings

2. The formal drawings filed on 10/01/2004 are acceptable.

Priority

3. Applicants have made no claim for priority.

Information Disclosure Statement

4. The Information Disclosure Statement filed on 3/1/05 has been considered.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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A. Claims 1,2,3, 5-8, and 14-20 are rejected under 35 U.S.C. 102(b) as being anticipated by KELLER ET AL. (5,665,993).

With regard to claims 1,2,3, and 5-8 Keller et al. discloses a Schottky barrier diode, comprising an active area 83; at least one separation region 84,85 bounding the active area 83; and an electrode 81 formed in the active area 83 to form a Schottky junction, wherein the at least one separation region 84,85 reduces parasitic capacitance about the Schottky junction, the electrode 81 comprises a silicide, the at least one separation region 84,85, silicon dioxide, is a dielectric material selected from a group consisting of an oxide, a polymer, a glass, and a nitride, the at least one separation region 84,85 comprises a plurality 84,85 of separation regions, at least one of which bounds the active area 83 in one dimension, the plurality 84,85 of separation regions bounding the active area 83 in two dimensions, the separation regions 84,85 fully surround the active region, so that the Schottky barrier diode has no guard ring, and wherein the Schottky junction has edges spaced away from the separation regions 84,85 bounding the active area 83. Note figure 2C, column 6 lines 59-67, and column 7 lines 5-11 of Keller et al.

With regard to claims 14-20 Keller et al. discloses a process for forming a Schottky barrier diode, comprising the steps of forming an active area 83 in a substrate; forming an electrode 81 on the substrate in the active area 83 to form

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a Schottky junction; and forming at least one separation region 84,85 on the substrate where the at least one separation region 84,85 is bounded on one side by the active area 83, wherein the at least one separation region 84,85 reduces parasitic capacitance about the Schottky junction, the electrode 81 comprises a silicide, the at least one separation region 84,85, silicon dioxide, is a dielectric material selected from a group consisting of an oxide, a polymer, a glass, and a nitride, the at least one separation region 84,85 comprises a plurality 84,85 of separation regions, at least one of which bounds the active area 83 in one dimension, the plurality 84,85 of separation regions bounding the active area 83 in two dimensions, the separation regions 84,85 fully surround the active region, so that the Schottky barrier diode has no guard ring, and wherein the Schottky junction has edges spaced away from the separation regions 84,85 bounding the active area 83. Note figure 2C, column 6 lines 59-67, and column 7 lines 5-11 of Keller et al.

B. Claims 1,3-6, and 8-13 are rejected under 35 U.S.C. 102(b) as being anticipated by KRUTSICK (6,066,884).

With regard to claims 1,3-6, and 8 Krutsick discloses a Schottky barrier diode, comprising an active area 73; at least one separation region 77 bounding the active area 73; and an electrode 74 formed in the active area 73 to form a Schottky junction, further comprising a guard ring 75, wherein a portion of the guard ring

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75 is removed (i.e., pushed away, isolated, or separated) from about the active area 73 (by the separation region), and wherein the at least one separation region 77 reduces parasitic capacitance about the Schottky junction, the at least one separation region 77 is silicon dioxide and thus a dielectric material selected from a group consisting of an oxide, a polymer, a glass, and a nitride, the at least one separation region 77 comprises a plurality (top, bottom, left, and right, in plan view fig. 10) of separation regions 77, at least one of which bounds the active area 73 in one dimension, the plurality of separation regions 77 bounding the active area 73 in two dimensions, and the Schottky junction has edges spaced away from the separation regions 77 bounding the active area 73. Note figures 9-11 and column 4 lines 5-42 of Krutsick.

With regard to claims 9-13 Krutsick discloses a Schottky barrier diode, comprising a semiconductor substrate 71; at least one separation region 77 bounding an active area 73 formed on the semiconductor substrate 71; a portion of a guard ring 75 on the substrate 71; and an electrode 74 formed on a surface of the semiconductor substrate 71 in the active area 73 to form a Schottky junction, wherein the at least one separation region 77 reduces parasitic capacitance about the Schottky junction, the at least one separation region 77 is silicon dioxide and thus a dielectric material selected from a group consisting of an oxide, a polymer, a glass, and a nitride, the at least one separation region 77 comprises a

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plurality of separation regions 77, at least one of which bounds the active area 73 in one dimension, the plurality of separation regions 77 bounding the active area 73 in two dimensions, and the Schottky junction has edges spaced away from the separation regions 77 bounding the active area 73. Note figures 9-11 and column 4 lines 5-42 of Krutsick.

Conclusion

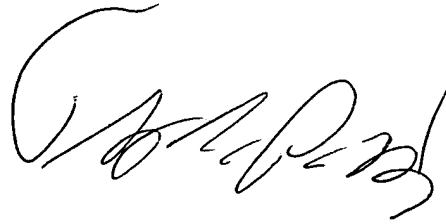
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair->

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direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thomas L. Dickey', is positioned above the printed name.

Thomas L. Dickey
Patent Examiner
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09/05